

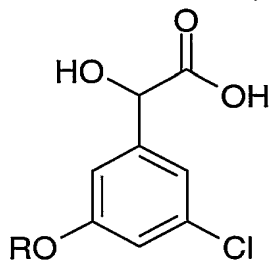
**Claims**

1. A process for resolving (*R*)- or (*S*)- optionally substituted mandelic acids from racemic mixtures of said optionally substituted mandelic acids by salt formation with a chiral base (D)- or (L)-cyclic amide, comprising the steps:

- 5 (a) forming a mixture in a solvent, or mixture of solvents, of a racemic, optionally substituted, mandelic acid; and a chiral base (D)- or (L)-cyclic amide, wherein the chiral base used is either (D) for separation of (*R*)-mandelic acids, or (L) for separation of (*S*)-mandelic acids, at an acid : base molar ratio of 1 : 0.25-0.75; and wherein the solvent, or mixture of solvents, may optionally contain water in the range of 5 to 15 % (vol.) of solvent; and
- 10 (b) separating the respective (*R*)/(D) or (*S*)/(L) mandelic acid-cyclic amide salt.

2. A process, according to claim 1, for resolving (*R*)- or (*S*)- substituted mandelic acids from racemic mixtures of said substituted mandelic acids by salt formation with a chiral base (D)- or (L)-cyclic amide, comprising the steps:

- 15 (a) forming a mixture in a solvent, or mixture of solvents, of a racemic mandelic acid derivative of formula I;

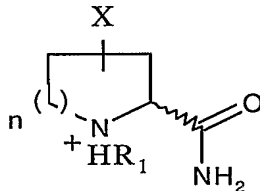


I

wherein R is selected from CHF<sub>2</sub>, H, C<sub>1-6</sub> Alkyl, CH<sub>2</sub>F, CHCl<sub>2</sub> and CCIF<sub>2</sub>; and

- 20 either a chiral base (D)-cyclic amide or (L)-cyclic amide of formula I(x)

wherein n is 0, 1 or 2; R<sub>1</sub> is H or C<sub>1-6</sub> Alkyl and X is H, halo or C<sub>1-6</sub> Alkyl,

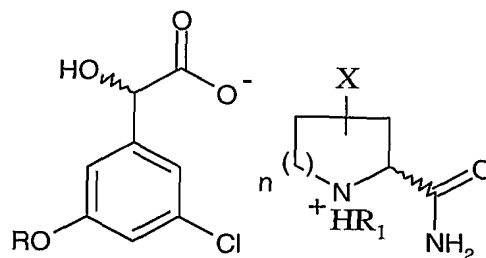


I(x)

wherein the chiral base used is either (D) for separation of (*R*)-mandelic acids, or (L) for separation of (*S*)-mandelic acids;

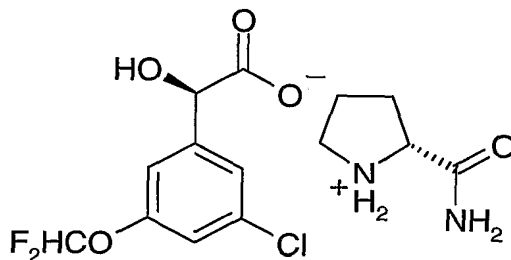
at an acid : base molar ratio of 1 : 0.25-0.75; and wherein the solvent, or mixture of solvents, may optionally contain water in the range of 5 to 15 % (vol.) of solvent; and

(b) separating the respective (*R*)/(*D*) or (*S*)/(*L*) mandelic acid-cyclic amide salt of formula **IIa**;



**IIa.**

3. A process, according to claim 1 or 2, wherein the (*R*)/(*D*) mandelic acid/cyclic amide salt is of formula VI;



**VI**

4. A process, according to any of claims 1 to 4, wherein the solvent used is selected from ethyl acetate, acetonitrile, acetone, 2-butanone, 4-methyl-2-pentanone, *tert*-butyl methyl ether, 2-propanol and ethanol or a mixture of any of these solvents.

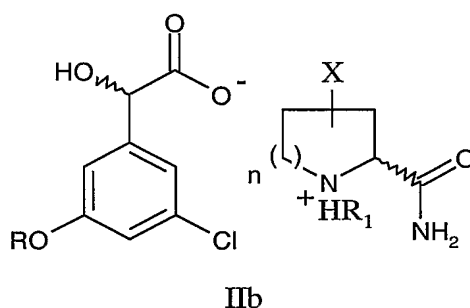
5. A process, according to any of claims 1 to 5, wherein the solvent used is ethyl acetate.

6. A process, according to any of claims 1 to 5, wherein the mixture is heated (preferably to reflux) before cooling and filtering off the respective (*R*)/(*D*) or (*S*)/(*L*) mandelic acid-cyclic amide salt.

7. A process, according to any of claims 1 to 6, wherein the acid : base molar ratio is 1 : 0.4-0.7.

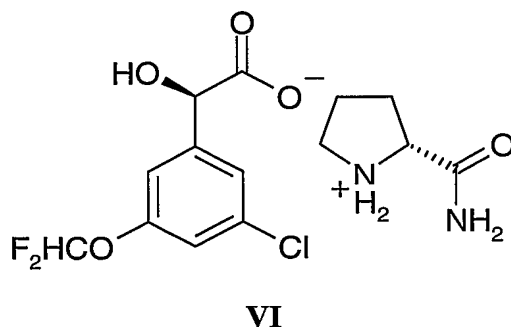
8. A process, according to any of claims 1 to 3, wherein the mandelic acid cyclic amide salt is separated, the mother liquors racemised and the process repeated, at least once, to obtain further resolved mandelic acid cyclic amide salt.

9. A (*R*)/(*D*) or (*S*)/(*L*) mandelic acid/cyclic amide salt having the formula **IIb**;



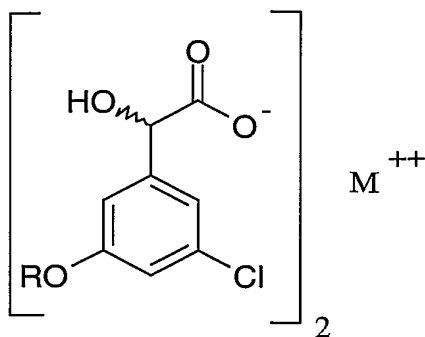
wherein R is selected from CHF<sub>2</sub>, H, C<sub>1-6</sub> Alkyl, CH<sub>2</sub>F, CHCl<sub>2</sub> and CClF<sub>2</sub>; and wherein n is 0, 1 or 2; R<sub>1</sub> is H or C<sub>1-6</sub> Alkyl and X is H, halo or C<sub>1-6</sub> Alkyl.

10. A (*R*)/(*D*) mandelic acid/cyclic amide salt, according to claim 9, which is of formula **VI**;



11. A metal salt of a mandelic acid derivative of formula **Ia**;

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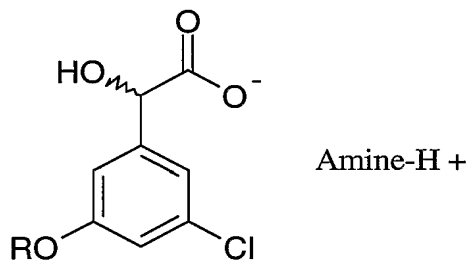
**Ia**

wherein R is selected from CHF<sub>2</sub>, H, C<sub>1-6</sub> Alkyl, CH<sub>2</sub>F, CHCl<sub>2</sub> and CClF<sub>2</sub>; and wherein the metal ion M is selected from calcium, zinc or magnesium.

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12. A metal salt, according to claim 11, wherein the mandelic acid derivative of formula **Ia** is the (*R*)-mandelic acid or (*S*)-mandelic acid derivative, preferably the (*R*)-mandelic acid.

13. An amine salt of a mandelic acid derivative of formula **Ib**;

**Ib**

wherein R is selected from CHF<sub>2</sub>, H, C<sub>1-6</sub> Alkyl, CH<sub>2</sub>F, CHCl<sub>2</sub> and CClF<sub>2</sub>; and wherein the amine is selected from triethanolamine, 4-hydroxy-2,2,6,6-tetramethylpiperidine, piperazine, 1,4-dimethylpiperazine, 2,4,6-trimethylpyridine, 4-hydroxy-1,2,2,6,6-pentamethylpiperidine or dicyclohexylamine.

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14. An amine salt, according to claim 10, wherein the mandelic acid derivative of formula **Ib** is (*R*)- or (*S*)-mandelic acid, and wherein the amine is selected from triethanolamine, 4-hydroxy-2,2,6,6-tetramethylpiperidine, piperazine, 1,4-dimethylpiperazine, 2,4,6-trimethylpyridine or 4-hydroxy-1,2,2,6,6-pentamethylpiperidine.

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15. An amine salt, according to claim 13 or 14, wherein the mandelic acid derivative of formula **Ib** is (*R*)- mandelic acid, and the amine is triethanolamine.

16. A salt according to any of claims 9 to 15 wherein the mandelic acid is (*R*)-3-chloro,5-difluoro-methoxy mandelic acid ((2*R*)-[3-chloro-5-(difluoromethoxy)phenyl]-(hydroxy)acetic acid).